

## CLAIMS:

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1. A composition comprising a saturated solution of zinc oxide in an aqueous sodium hydroxide solution wherein the concentrations of the zinc oxide and the sodium hydroxide in said solution are as set forth in Figure 1.

2. A composition comprising a saturated solution of zinc oxide in an aqueous potassium hydroxide solution wherein the concentrations of the zinc oxide and the potassium hydroxide in said solution are as set forth in Figure 2.

3. A process for preparing a solution of zinc oxide in an aqueous sodium hydroxide solution, said process comprising diluting a more concentrated solution of zinc oxide in aqueous sodium hydroxide to produce a resulting dilute solution of zinc oxide having a concentration of zinc oxide that is higher than that obtained by dissolving solid zinc oxide in aqueous sodium hydroxide, wherein the concentration of the aqueous sodium hydroxide used for dissolving the solid zinc oxide is substantially the same as the concentration of the aqueous sodium hydroxide in the resulting dilute solution of zinc oxide, and wherein the concentration of the aqueous sodium hydroxide in the resulting dilute solution ranges from about 5 wt% NaOH to about 35 wt% NaOH.

4. A process for preparing a basic solution of zinc oxide in an aqueous potassium hydroxide solution, said process comprising diluting a more concentrated solution of zinc oxide in aqueous potassium hydroxide to produce a resulting dilute solution of zinc oxide having a concentration of zinc oxide that is higher than that obtained by dissolving solid zinc oxide in aqueous potassium hydroxide, wherein the concentration of the aqueous potassium hydroxide used for dissolving the solid zinc oxide is substantially the same as the concentration of the aqueous potassium hydroxide in the resulting dilute solution of zinc oxide, and wherein the concentration of the aqueous potassium hydroxide in the resulting dilute solution ranges from about 10 wt% KOH to about 55 wt% KOH.

5. The process of claim 3, wherein the concentration of the aqueous sodium hydroxide in the resulting dilute solution ranges from about 10 wt% NaOH to about 35 wt% NaOH.

6. The process of claim 4, wherein the concentration of the aqueous potassium hydroxide in the resulting dilute solution ranges from about 20 wt% KOH to about 55 wt% KOH.

7. A process for producing zinc metal comprising electrolyzing a basic solution of zinc oxide prepared by the method of claim 3.

8. A process for producing zinc metal comprising electrolyzing a basic solution of zinc oxide prepared by the method of claim 4.

9. The process of claim 5, wherein the electrolysis is carried out at a current density of about 500 amps/m<sup>2</sup> to about 20,000 amps/m<sup>2</sup>.

10. The process of claim 6, wherein the electrolysis is carried out at a current density of about 500 amps/m<sup>2</sup> to about 20,000 amps/m<sup>2</sup>.